

FORESTS VERSUS CLIMATIC CHANGE

Forests cover approximately 30% of the global land surface. Forests provide support to mammals, birds, amphibians, and plants. As human beings, we depend on forests for timber forest products including timber, wood, firewood, poles; for non-timber forest products such as gums, resin, fruits, rubber, honey, wax, propolis; as well as for medicinal purposes. Forests harbor most of the earth's terrestrial biodiversity. The conservation of biodiversity is thus dependent on the way we interact with and use our forests. Ironically, the resilience of human food systems and their capacity to adapt to future change depends on that very biodiversity; including dryland-adapted shrub and tree species, trees with extensive root systems in mountain ecosystems, mangrove tree species, forest-dwelling insects, bats and bird species.

Unfortunately, biodiversity of forests is currently facing high threats in various parts of the world. Deforestation and forest degradation continue to take place at alarming rates and contribute significantly to the global loss of biodiversity. The major factors that lead to deforestation include clearing of forests for establishing settlements grazing, cultivation activities, and charcoal production. These activities are conducted by local civilians as part of their daily economic activities to sustain life with/without proper knowledge of the long-run climatic change that might occur. With climate change intensifying the risks to food systems, the role of forests in mitigating climate change is of ever-increasing importance.

Through its ecosystem services, forests can help the environment to overcome climatic catastrophes to a great extent. The ecosystem services that are provided by forests can be categorized as supporting services, regulatory services, provisioning services and cultural services; -

Supporting services

Dryland-shrub and tree species play a great role in preventing soil erosion. Their roots' anchorage holds soils in place and thus prevent removal of top-soil and nutrients by water. By doing so, they protect the soil and reduce the chances of greater hazards such as desertification to occur. Trees with extensive root systems in mountain ecosystems also prevent soil erosion by holding soils intact and reducing the speed surface runoff. Trees also support nutrient cycling in the soil. The process begins by the uptake of nutrients by trees through their roots, followed by incorporation of the mineral nutrients into biological tissues of plants, the falling of litter, barks or stems and lastly by decomposition of organic matter to release nutrients to the soil by microorganisms.

Regulating services

Trees regulate pollination and the water holding capacity of the soil. Typical evidence is observed in agroforestry farms, where excess rain, drought, and high temperatures have minimum impacts on crops. Carbon fixation is another important regulatory service provided by the ecosystem whereby trees as photosynthetic organisms turn inorganic carbon into organic carbon. By doing so, forests are regarded as the largest carbon sinks, absorbing extreme amounts of carbon dioxide each year, and storing much more. Forests also regulate water filtration by collecting rainfall through trees which act as natural sponges and filtering sediments and other pollutants from the water in the soil before it reaches a water source, such as a stream, lake, or river.

Provisioning services

Apart from providing the above-mentioned timber and non-timber forest products, forests also provide clean water through natural streams. Forests also provide security to local communities.

Mangrove forests, for example, can hold back storm surges or cyclonic flooding. Humans also depend on forests for food provision. This is because animals and birds that aid pollination to occur in crops depend on trees for habitats.

Cultural services.

Recreational and tourism services can be obtained from our forests. The respective authorities responsible for managing forests can use this chance to generate income from forests by setting proper plans towards providing these services. Some forests also carry aesthetic and cultural heritage values to its surrounding communities. For example, in previous years before colonization and introduction of religions by European missionaries, several indigenous tribes in Africa were conducting tribal rituals in specific forests. Some tribes even worshiped trees and regard them as gods. This was and to some indigenous tribes is still part and parcel of their customs and tradition. Educational services are also among ecosystem services provided by forests. People can learn the various trees that exist in forests, identify their features, and discover new ways on how to use them for the betterment of their society.

Several national and international comprehensive approaches have been put in place to combat climatic changes resulting from deforestation and forest degradation. REDD+ (Reduced Emission from Deforestation and forest Degradation) is at the forefront of the international community's efforts to preserve vast tracts of land currently home to forests. It was officially launched in 2015 by the United Nations Framework Convention on Climate Change (UNFCCC) as a framework of policies and incentives for reducing deforestation and forest degradation and increasing carbon storage in forests through conservation and sustainable management. The broad intent of REDD+ is to help countries shift to low-emissions development pathways by increasing the value of healthy forests relative to other land uses. Achieving and sustaining the objectives of REDD+ requires the transformation of economic activities within and outside of the forests, often referred to as the drivers of deforestation and forest degradation. REDD+ is voluntary in nature. Developing countries are encouraged, but not required, to determine if and to what extent they will contribute to mitigation actions in the forest sector by undertaking REDD+ activities in accordance with their respective capabilities and national circumstances. These activities include:-

- Reduce emissions from deforestation
- Reduce emissions from forest degradation
- Conserve forest carbon stocks
- Sustainably manage forests
- Enhance forest carbon stock

Financial support for REDD+ may come from a variety of sources, such as the public and private sectors and bilateral and multilateral agreements. This funding may include payments to countries for succeeding in emissions reductions, and this can be achieved through the implementation of REDD+ activities. These are called results-based payments.

The UNFCCC framework for REDD+ clearly states the phases for conducting REDD+, its responsible financial supporters, the pre-requisites for receiving result-based payments, and all other issues to take into consideration for carrying out the REDD+ activities.